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Pamela Kidd

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Associate Dean for Graduate Programs & Research

May 2, 2001

ALL IN THE FAMILY

DIABETIC EDUCATION PROGRAM

by

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An Applied Project Presented in

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ABSTRACT

The prevalence of chronic disorders increases as Americans age. Diabetes is a major chronic health problem affecting 13 to 14 million people in the United States (U.S.) with approximately five percent of these diabetic patients over the age of 65 years. Complications from diabetes are continuing to rise in the U.S. each year. Diet, exercise, and medications are the three main components of the treatment for people with non-insulin dependent diabetes mellitus (NIDDM). Non-adherence to a diabetic regimen leads to end organ damage, co-morbidity, decreased quality of life, and eventually death. Adherence to this regimen leads to the greatest health improvement, yet these critical components are the most difficult to change. The success of the diabetic regimen often depends on the patient's available resources that influence or initiate a change in behavior. Family and social support could be one of the resources needed to help improve diabetes management and glycemic control. The purpose of the proposed innovation is to initiate a comprehensive diabetic education program for NIDDM patients using Orem's Self-Care Theory that will incorporate the patient's family and social support into the treatment care plan. The proposed innovation will be conducted in a five-week self-management series designed for the individual with NIDDM and his/her family or the support system. The education program will include a pre-education needs assessment and both a knowledge and physiological component. A post-education knowledge test will be repeated at six months and the physiological component will be repeated at three months and six months. The pre- and post-education values will be compared at six months.

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Introduction

Problem Identification

Diabetes is a major chronic health problem affecting 13 to 14 million people in the United States (U.S.) and is the seventh leading cause of death in the U.S. Approximately 90% to 95% of these patients have non-insulin dependent diabetes mellitus (NIDDM) and five percent of these diabetic patients are over the age of 65 years. The prevalence of chronic disorders increases as Americans age. The United States Public Health Service (1992) reports that diet management, exercise, and medication are the three main components of the treatment for people with NIDDM. Non-adherence to a diabetic regimen leads to end organ damage, co-morbidity, decreased quality of life, and eventually death which suggests a need for a program that improves adherence to therapeutic regimens. Adherence to this regimen leads to the greatest health improvement, yet these critical components are the most difficult to change. Diet is a very personally and culturally rooted human behavior making motivation to adhere to the diabetic diet difficult (Wang & Abbot, 1998). Exercise has three major benefits: (a) burns calories, (b) improves the body's response to insulin, and (c) reduces the risk factors for heart disease. Because of hypertension or other health complications, many people with NIDDM find exercise difficult to incorporate in their daily living (United States Public Health Service, 1992). Medications are an option if diet and exercise do not work. Adherence to the medication regimen is hard for many patients because of side-effects or their inability to understand how to take the medication.

The need for a diabetic health program has evolved as a result of efforts to maintain health rather than merely treat the disease. Prevention plays a major role in the management of NIDDM. A comprehensive prevention program combined with family support may be most

effective in the reduction of the burden of medical care for diabetes-related complications. Outcome based education is needed to teach NIDDM patients to make and maintain effective changes in lifestyle. The education program must provide factual information, address behavior, attitudes, self-management, and provide the diabetic patient with a plan acceptable to the patient's lifestyle.

Purpose of Innovation

The success of the diabetic medical regimen often depends on the patient's available resources that influence or initiate a change in behavior. Research has found that family and social support could help improve diabetes management and glycemic control. La Greca (1998) states that in order to manage a chronic disease such as diabetes, the patient and the family must be knowledgeable about the disease and learn how to properly manage it. This also means knowing how to solve problems and how to adjust the regimen tasks to the changing needs of the patient and his/her family. This goes beyond an intellectual understanding of what diabetes is as a disease. Therefore, the purpose of this innovation is to initiate a comprehensive diabetes education program for NIDDM patients that will incorporate the patient's social and family support into the treatment care plan.

Research Support

Family and Social Support

Diabetes is a chronic disease that has both short term and long term consequences from hyperglycemia; patients with NIDDM must change both their eating habits and their lifestyles. There is much literature available about the overall management of individuals with diabetes but there is limited information that discusses the effectiveness of family support on the management and glycemic control of NIDDM patients. Wang and Fenske

(1996) conducted a study using 66 NIDDM subjects to examine the relationships between self-care behaviors and the patient's source of support, between health and source of support, and between activities that help manage the disease condition and source of support. Self-care behaviors in adults with NIDDM showed positive correlations between Universal Self-Care (USC) behaviors and health (r= .83068, p= .0001) and with Health Deviation Self-Care (HDSC) behaviors and health (r= .42046, p= .0004). An ANOVA revealed that USC could explain 26% of the variance in HDSC. They found a patient's source of support influences their self-care actions. This study showed that subjects who received support from their family plus friends had significantly higher diabetes self-care behaviors than the subjects who had no support. The researcher suggest there is a need to assess a NIDDM patient's support system because family and social support helps improve health and mediates the effects of stress on illness.

A study by Wang & Abbott (1998) developed a program for NIDDM and/or hypertensive Chinese people living in Chinatown, Honolulu, Hawaii. They recruited 75 individual with either Type 2 diabetes, hypertension or both. The mean age of the participants was 71.76 years. Surveys and educational programs were carried out in Chinese. Family support outcomes were evaluated by pre- and post-education questionnaires. Biweekly blood glucose levels drawn by a diabetes nurse educator or a public health nurse measured health outcomes. All medications were recorded and the diabetes nurse educator reviewed the participants' monthly diet and exercise logs. The score distribution of family support for the exercise regimen was skewed to the left with a mean of 1.9, SD=2.36, while the distribution of glucose testing was also skewed to left with a mean of 1.3, SD=2.51. The participants' blood glucose levels ranged between 126 and 277 mg/dL (M=198.4762, SD= 44.985) before

the community based preventive program was established. The participants' blood glucose levels ranged between 85 mg/dL to 226 mg/dL (M=140.6190, SD=37.906) after participating in the program. Family support combined with education improved control of blood glucose ($p < .001$). Findings indicated the Chinese adults with NIDDM that perceived positive family support for diet, exercise, glucose testing, and medication had better self-care behaviors. The medication regimen was the area in which the majority of participants perceived family support without negative feedback from their family members but a majority of participants did not perceive family support in terms of glucose testing related to self-care behaviors. The explanation for this included cultural differences. The adherence to different regimens may be culture specific.

Eriksson and Rosenqvist (1993) conducted a study on 76 newly diagnosed NIDDM patients to determine the influence of perceived social support on glycemic control. The group consisted of 43 men and 33 women with the mean age of 60.6 years all newly diagnosed as having NIDDM. All participants of the study were mailed an 87 item multiple-choice questionnaire to be completed at home. The patients were interviewed six months later and then after another 6 months they received a 67 item multiple-choice follow-up questionnaire. Both questionnaires contained the same 18 items about social support, demographics, psychosocial factors, opinions about the disease and its treatment and food knowledge. After one year, perceived social support scores were correlated with fasting blood values. An ANOVA indicated that high supported males had better fasting blood values than high supported females. Low supported women had better food knowledge than low supported men ($t = 2.26$, $p > .05$). Gender comparison showed that high support women reduced their weight more than high support men, χ^{*} $(1, N = 76) = 5.27$, $p > .05$. Almost half

of the patients (46%) reported self-monitoring of blood glucose in the questionnaire, but when this result was controlled for regularity, it was found that only 20% controlled their blood glucose at home regularly at least once a week. The researchers concluded that men had better outcomes because women traditionally are the caregiver and therefore support their families often to the point of neglecting their own health care needs. When the situation arises that the woman must concentrate on her own needs in order to maintain good health, she may come into conflict with deeply-rooted gender-role patterns. The female patient must integrate the new life-style and persuade her husband (or family) to change in her direction.

Kvam and Lyons (1991) conducted a study that examined 51 patients (30 men and 21 women) who participated in an outpatient diabetes education program to analyze how diabetics' coping strategies and perceptions of social support influence their general health status. Of the study participants, 57% (n=29) were insulin dependent and 29% (n=15) were NIDDM controlling their diabetes through oral hypoglycemic agents. The remaining 14% (n=7) were neither insulin-dependent nor NIDDM but utilized diet to control diabetes. A multiple regression analysis was performed to compare participants' Ways of Coping and Perceived Social Support measures to their General Well-being indexes. Eight coping factors were identified as problem-focused, wish-fulfillment, detachment, social support-seeking, positive focus, blames self, tense/minimize threat, perceived family support, and perceived friends' support. Problem-solving coping had the most significant impact on general well being (r= .344). There were no differences between perceived support from family (M=14.0, SD=5.1) and friends (M=13.6, SD= 4.4). There was a significantly higher correlation with general well-being from perceived friends' support (r= .422) than from perceived family support (r= .288). The correlation between friend support and family support was relatively

low (r= .20). Participants perceived support from either friends or family but not necessarily from both. Perceived family social support was much greater for NIDDM participants than for Type I participants (M=12.4, SD=4.5). Men perceived greater support from family (M=14.9, SD=4.8) while women reported more support from friends (M=16.8, SD=3.2). Men reported being healthier than the women did (men's well being: M= 166.2, SD= 27.4 and women's well being: M= 156.8, SD= 35.2). The researchers concluded that participants perceived equivalent support from their friends and families, yet there was a significantly greater relationship to general well being from perceptions of friends' support.

Wang (1997) examined the applicability of the Orem's Theory of Self-Control with 100 NIDDM adults from Taiwan between the ages of 25 to 85 years. An interview was used to examine the relationships between the ethnicity of the participants and the universal self-care behaviors (USC), health deviation self care behaviors (HDSC), and perception of health in adults who control their blood glucose with oral agents. Family support and other sociobiographic characteristics were considered as basic conditioning factors. Participants' USC ranged from 21.2 to 91.7 (M=65.92, SD=15.17). Health positively correlated with USC (r= .92, p= .0001). It was concluded that although biological and cultural factors influence a person's self-care behaviors, basic conditioning factors such as social support and adjustment to chronic illness facilitates self-care behaviors.

Diabetes Education and Health Beliefs

Wooldridge, Wallston, Graber, Brown, & Davidson (1992) conducted a study to determine whether health beliefs in persons with diabetes could be modified during a clinical education program and whether the health beliefs were related to adherence to self-care instructions and metabolic control of diabetes. The target population consisted of 189 diabetic patients being

seen in an endocrinology practice in Nashville, Tenn. (1988-89). Of this group, 66% had type II diabetes mellitus, 50% were female, the mean duration of diabetes was 10.1 years (range = 0 – 40 years, indicating some patients with newly diagnosed diabetes), and the mean age was 45.6 years (range = 11- 76 years). The study participants' health beliefs were measured using a 14-item diabetes health belief scale taken at baseline and again within twelve months following the first diabetes education visit. The pre- and post-education health beliefs scores (pre-education: $\underline{M}$ = 31.8, post-education: $\underline{M}$ = 33.3) and test-retest correlation coefficients and paired t-test results ($\underline{r}$= .28, $\underline{t}$ = -2.8, $\underline{p}$< .005) showed modest but significant increases occurred in perceived severity of diabetes, perceived benefit of treatment, and perceived ability to carry out recommended activities.

A glycosylated hemoglobin (HbA1c) level was measured on all patients during their first visit and every three months thereafter using a Bio-Rad Mini Column test, which has a coeffient of variation of 3.2% +/- .27 (normal HbA1c= 4.2 – 6.0%). HbA1c values for type I diabetes indicates no significant correlation between pre- and post-education health beliefs, HbA1c levels, and self-reported compliance (pre-education: $\underline{M}$ = 8.4%, post-education: $\underline{M}$ = 8.2%, $\underline{r}$= .45, $\underline{t}$= -.81, $\underline{p}$< .42). HbA1c values for type II diabetes showed significant statistical correlation between pre- and post-education health beliefs, HbA1c levels, and self-reported compliance (pre-education: $\underline{M}$ = 8.5%, post-education: $\underline{M}$ = 7.1%, $\underline{r}$= .19, $\underline{t}$= -7.1, $\underline{p}$< .00).

This study demonstrated that some health beliefs changed in a positive direction during the course of the education program, which was geared toward providing individuals with more appropriate health beliefs. The researchers stated that since there was no control group in the study; it was difficult to determine if exogenous factors contributed to the change. HbA1c

values decreased significantly from baseline to post-education for patients with type II diabetes, but not for patients with type I diabetes. These results indicate that perhaps health beliefs are possibly amenable to positive change to significantly affect adherence or metabolic control, perhaps as a result of the process of diabetes education.

Colagiuri, Colagiuri, de Blieck, & Naidu (1994) tested the immediate impact of individual diabetes patient education program on patient knowledge of the chronic disease on 67 patients with the mean age of 60.4 years. A pre and post-education questionnaire was given to the participants. The level of significance was set at $p < .05$. The results showed individual diabetes patient education programs result in a demonstrable improvement in knowledge about diabetes (pre-education: $M = 33.4$, $SD = 24.6$, and post-education: $M = 77.2$, $SD = 20.7$, $p < .001$), and self-monitoring (pre-education: $M = 26.3$, $SD = 29$, and post-education: $M = 84.4$, $SD = 15.7$, $p < .0001$) immediately following an education session although there was significantly less improvement in dietary knowledge (pre-education: $M = 30.0$, $SD = 23.2$, and post-education: $M = 57.2$, $SD = 21.9$, and $p < .0001$). This was attributed to longstanding dietary perceptions that are inextricably linked to religious, cultural and health beliefs that may make it difficult to alter dietary knowledge. They concluded that it is easier to teach new knowledge than changing a patient's existing beliefs.

Diabetes Education Program

Wikblad (1991) conducted 55 interviews with well-experienced insulin dependent diabetic patients to better understand the relationship between the length of the educational program and the patient's knowledge and metabolic control. She found educational programs need to be at an acceptable comprehensive level and to be provided over the course of one year for it to be most effective. Wikblad (1991) states that a patient with a chronic disease, such as

diabetes, needs medical, psychological and social support in order to manage his daily self-care. She concluded that diabetes education should be viewed as a complex process including behavioral reinforcement and emotional peer support directed to the patient and his family and social support system.

Hitchcock, Larme, Meyer, Marsh, Correa, and Pugh (1998) conducted a study of 596 NIDDM patients to examine the effects of patient choice between two educational curricula that emphasized either the standard or nutritional management of type 2 diabetes on class attendance on mostly a Hispanic patient population. The majority of patients were Hispanic (n=505), female (n=374), and ranged in age from 18 to 91. 305 were assigned to the choice condition and 291 were assigned to the no choice condition. Of the 305 patients in the choice condition, significantly more patients chose the nutrition program (78%) than the standard program (22%, $p< .0001$). Of the 596 patients who were enrolled in the study and randomized, 177 (29.7%) patients never attended any classes. The choice and nutrition groups had higher rates of completing all five classes compared with the no choice and standard groups. An ANOVA did not indicate a statistically significant difference in the number of classes attended between groups on the choice factor versus no choice factor. 430 patients were available for follow-up data, 233 attended all five classes (54%), 95 attended some classes (22%), and 102 (24%) did not attend any classes. The patients who did not participate in the follow-up were significantly younger ($t = -7.12$, $p< .0001$), more likely to be male ($X = 5.29$, $p< .05$), and to have attended fewer classes ($t = -6.26$, $p< .0001$) than patients who did participate in the follow-up assessments. A repeated measures ANOVA was used to assess changes over time from baseline to follow-up for patients who attended all five classes compared with patients who did not attend classes. The results indicate the patient who

completed the five-class sequence had significantly greater improvements from baseline to follow-up compared to those who did not attend any classes on knowledge ($p < .0001$). It was concluded that patients who were allowed to choose their curriculum did not have significantly higher attendance rates or significantly better improved knowledge. Patients who attended all five classes of either curriculum had significantly improved knowledge about diabetes. It is suggested that diabetes education should provide for opportunity for long-term, repetitive, and multilayered contacts to produce the motivation, improved knowledge and skills, and actual behavior changes needed for lifelong optimal diabetes self-management.

Innovation Description

Patient education is a planned learning experience using a combination of methods such as teaching, counseling, and behavior modification techniques which influence patients' knowledge and health behavior (Wikblad, 1991). An individualized diabetes education program needs to be developed that emphasizes the individual health beliefs, social support systems, cultural preferences, preferred learning styles, and treatment satisfaction instead of the traditional model based on behavioral and lifestyle changes.

Theoretical Framework

Orem's theory of self-care will provide the framework for this innovation (Refer to Figure 1). Orem (1991) states the type of social support and diagnosis is basic conditioning factors that modify an individual's capacity for universal self-care. Universal self-care is the performance or practice of activities that individuals initiate and perform on their own behalf to maintain life, health, and well being. When self-care is effectively performed, it helps to maintain structural integrity and human functioning, and it contributes to human development.

Orem (1991) further states that the individual's ability to engage in self-care is affected by basic conditioning factors such as age, gender, developmental state, health state, sociocultural orientation, healthcare system factors, family systems factors, and resource adequacy and availability. Orem's theory focused on the descriptions of illness and health and what nurses do to assist the person to move toward health (Chinn & Kramer, 1999). Orem theory is based on the concept of preventive health care that includes the promotion and maintenance of health (primary prevention), treatment of the disease (secondary prevention), and prevention of complications (tertiary prevention) (George, 1995). This innovation will take into account the diabetic patient's perception of basic conditioning, their perception of health, and their universal self-care behaviors to promote prevention of long term complications.

Proposed Innovation

The proposed innovation is to implement a comprehensive diabetes health program at the 56th Medical Group (MDG), Luke Air Force Base (AFB). The setting for this innovation will be the patient education services offered at the Health and Wellness Center (HAWC). This innovation will be conducted in a five-week self-management series designed for the individual with NIDDM, the family or the support system at the HAWC at Luke AFB. Research-based support for family and social support has been established in the previous section. The series will address the basics of eating, physical activity and exercise, medications, serum glucose monitoring, and mental toughness. Participants can begin the program at any time. The diabetes educator will conduct a thorough, individualized needs assessment with the participation of the patient, family, or support systems to develop the educational plan and intervention. The plan will then be coordinated among the diabetes healthcare team members, the patient, the family, and their support systems. The diabetes

education program will provide accessible services and individualized education based on a progression from basic survival skills to advanced information facilitate positive self-care behaviors and improved outcomes. This is congruent with Wikblad's (1991) findings that patients want the health education program to be a continuous process that is applicable to the patient's level of learning. Patients need continuous access to diabetes care in order to improve self-care behaviors and glycemic control.

Implementation Protocol

The implementation plan of this innovation is based on Prochaska's theory of change. According to Prochaska (1992), successful change involves assessing the stage of a client's readiness for change and to tailor interventions accordingly. The five stages identified are precontemplation, contemplation, preparation, action, and maintenance. The first stage, precontemplation, is the stage when the individual has no intention to change his/her behavior in the foreseeable future. Patients in this stage are unaware of their problems although family, friends, and employers are often aware that the precontemplators have problems. The second stage, contemplation, is when the individual is aware that a problem exists and is thinking about overcoming it but has not yet made a commitment to take action. This is time the patient may start seeking medical care. During the third stage, preparation, the individual in this stage is intending to take action in the near future and has unsuccessfully taken action in the past year. This is the stage that the patient may start investigating health education programs. The fourth stage, action, is when the individual begins to modify his/her behavior, experiences or environment in order to overcome their problems. Evidence of this stage will be the attendance of the diabetic patient at the preventive health program. Maintenance is the fifth stage in which people work to prevent relapse and consolidate the gains attained during

the action stage. Maintenance is a continuation of change. During this stage, the individual will utilize the knowledge gained by attending a preventive health program.

Upon approval from the hospital commander, the proposed innovation will be implemented at the 56th MDG, Luke AFB, Arizona. Prior to implementing this innovation, all providers who provide care for NIDDM patients will be contacted and given a packet that will provide accurate information about the innovation. The proposed educational innovation will be explained in full to include how it will impact the care of the NIDDM patient. The providers will then be asked to briefly explain the purpose of the diabetic education program to the NIDDM patients seen and encourage their participation. The patients who agree to participate in the proposed innovation will be given a form to complete with their name and number so they may be reached by the educational staff to have all questions answered by the project director. Members of the healthcare team will strictly adhere to the Patient Privacy Act in order to assure that the patient's right to privacy is protected. All NIDDM patients have the right to refuse diabetes health education.

Implementation of the proposed innovation is feasible in terms of costs and ease of implementation. A diabetes health education program that emphasizes diet changes and behavior modification in weekly group sessions is presently in effect at the HAWC. Diabetes educators will need to be trained to prepare individualized education plans that will include the patient, family, and appropriate support systems about diabetes self-care management. The budget developed for this innovation includes costs incurred by provider time with the NIDDM patient, diabetes educator, laboratory personnel time to process tests, testing supplies, and program evaluation (see Appendix A).

Evaluation

In order to evaluate the diabetic health education program, a needs assessment and both a knowledge and physiological component will be used. Diabetic patients participating in the program will be required to complete the Diabetes Care Profile (DCP); a valid and reliable assessment tool developed by the Michigan Diabetes Research and Training Center (MDRTC), prior to attending the educational program. This instrument contains 234 items and sixteen scales. These scales will assess the patient's diabetes attitudes, diabetes beliefs, self-reported adherence to diabetes self-care, family and social support, and the difficulties of diabetes self-care. The DCP also contains questions concerning demographic information and self-care practices. The participants can complete the questionnaire in approximately 30 to 40 minutes (http://www.med.umich.edu/mdrtc). See Appendix B for a copy of the MCRTC Diabetes Care Profile.

The MDRTC developed the Diabetes Knowledge Test (DKT) to determine the diabetic patient's knowledge about the disease. It is a valid and reliable ($\alpha = \geq 0.70$) 23-item test that represents the patient's general knowledge of diabetes (http://www.med.umich.edu/mdrtc). The first fourteen items are appropriate for patients with type I and type II diabetes. An additional nine items constitute the insulin-use subscale that is appropriate for adults with both type I and type II diabetes using insulin. The Flesch-Kincaid grade level measured the DKT's readability and determined the reading level for the test items is at the 6th grade. The test is self-administered and takes approximately fifteen minutes to complete (Fitzgerald, Funnell, Hess, Barr, Anderson, Hiss, and Davis, 1998). This tool will be utilized as a pre- and post-education test to evaluate knowledge gained during the education program. See Appendix C for a copy of the MDRTC Diabetes Knowledge Test

Metabolic control will be evaluated by a pre- and post-glycosylated hemoglobin (HbA1c) intervention. A HbA1c value reflects the average blood glucose over the preceding three months and is widely accepted as a reliable and valid index of metabolic control (Trief, Grant, Elbert, and Weinstock, 1998). The pre-intervention HbA1c will be drawn prior to the start of the program and again every three months at regular chronic care checkups with his/her. This will give baseline data, three-month data, and six-month data.

Decision Making

Decision-making will occur based on the comparison of baseline and six-month HbA1c data as well as the pre- and post-tests. The innovation will be viewed as a success if 70% of the diabetic patients surveyed demonstrate an increased knowledge about the disease at the end of the educational program and a 10% improvement between the pre-intervention and post-intervention (six-months) mean score for HbA1c values.

The method for maintaining a successful innovation is to gain support of the providers, diabetic educators, and hospital commander. Quarterly updates will given to the staff at the Health Prevention Committee meeting. Annual reports of the program evaluations will be submitted to the hospital commander by the end of each fiscal year. At the end of the first year, the program and its evaluation will become the responsibility of the Health Promotions officer. If this innovation is successful, it could be benchmarked as a "Best Practice" and easily adapted to other Air Force outpatient clinics.

If the desired outcomes are not met, the nurse educators and providers will conduct a complete evaluation of the curriculum. If specific problem areas are identified, an attempt to correct these problems will be made. The innovation will continue with the proposed changes

or discontinuation of the innovation will occur after the recommendation of the medical providers, diabetic nurse educators, and the hospital commander.

Summary

To promote better diabetes care, the family must remain actively involved with the care and treatment. Family members will need to remain intimately involved in the day to day management of the disease. The family members will need to participate in the lifestyle aspects of diabetes such as preparing meals, promoting exercise, taking medications and other activities. An important role of the family is to be emotionally supportive to the diabetic patient by helping him/her cope with the stress and strain of having the disease. Diabetes is a disease that becomes closely intertwined with family life.

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APPENDIX A

BUDGET

Budget

	Contributed	Actual	Total
Site/Office space Furniture/ telephone/Utility	$10,000.00		
Educational Materials/surveys from pharmaceutical companies and research centers	$500.00		
Training / modules for Diabetes Educator		$500.00	$500.00
Audio-visual equipment/supplies	$5,000.00		
Diabetes Educator Salary		$15/hr @ 40 hrs/month for 6 months	$3,600.00
Lab personnel		$12/test x 500 HbA1c/6 months	$6,000.00
Lab supplies		$30/test x 500 for 6 months	$15,000.00
Office Supplies	$1,000.00		
paper/postage	$1,000.00		
Goodies for group- Veggies and drinks		$500.00	$500.00
Total			$25,600.00

APPENDIX B

MICHIGAN DIABETES RESEARCH AND TRAINING CENTER'S

DIABETES CARE PROFILE

ID# _____

Name _____

Today's Date _____

Diabetes Care Profile

Michigan Diabetes
Research and Training Center
DCP2.0

Section I - Demographics

Please answer each of the following questions by filling in the blanks with the correct answers or by choosing the single best answer.

Note: For this survey, a Health Care Provider refers to a doctor, nurse practitioner, or physician assistant.

Q1. Age: __ __ years old

Q2. Birth date: __ __ /__ __ /__ __
(Month / Day / Year)

Q3. Zip Code: __ __ __ __ __

Q4. Sex: ☐1 Male ☐2 Female

Q5. What year were you first told you had diabetes? (Please enter the year) __ __ __ __

Q6. What is your marital status? (check one box)

☐1 Never married
☐2 Married
☐3 Separated/Divorced
☐4 Widowed

Q7. What is your ethnic origin/race? (check one box)

☐1 White
☐2 Black
☐3 Hispanic
☐4 Native American
☐5 Asian or Pacific Islander
☐6 Arabic
☐7 Other _____

Q8. Where do you live most of the year? (check one box)

- ☐1 Your home, apartment or condo
- ☐2 Senior citizen apartment/condo
- ☐3 Home of a relative/friend
- ☐4 Retirement home
- ☐5 Adult foster care
- ☐6 Nursing home
- ☐7 Other _____

Q9. How many people live with you? (check one box)

- ☐0 I live alone
- ☐1 1 person
- ☐2 2 people
- ☐3 3 people
- ☐4 4 people
- ☐5 5 or more

Q10. How much schooling have you had? (Years of formal schooling completed) (check one box)

- ☐1 8 grades or less
- ☐2 Some high school
- ☐3 High school graduate or GED
- ☐4 Some college or technical school
- ☐5 College graduate (bachelor's degree)
- ☐6 Graduate degree

Q11. Which of the following best describes your current employment status? (check one box)

- ☐ 1 Working full-time, 35 hours or more a week
- ☐ 2 Working part-time, less than 35 hours a week
- ☐ 3 Unemployed or laid off and looking for work
- ☐ 4 Unemployed and not looking for work
- ☐ 5 Homemaker
- ☐ 6 In school
- ☐ 7 Retired
- ☐ 8 Disabled, not able to work
- ☐ 9 Something else? (Please specify): _____

Q12. How would you describe the insurance plan(s) you have had in the past 12 months? (check all that apply)

- ☐ 1 An individual plan – the member pays for the plan premium
- ☐ 2 A group plan through an employer, union, etc. – the employer pays all or part of the plan premium
- ☐ 3 U.S. Governmental Health Plan (e.g., Military, CHAMPUS, VA)
- ☐ 4 Medicaid
- ☐ 5 Medicare
- ☐ 6 I have not had an insurance plan in the past 12 months

Q13. What type(s) of insurance plans have you had in the past 12 months?
(check all that apply)

- ☐1 Indemnity or fee-for-service plan (i.e., you choose which health care provider you see for care without financial penalty)
- ☐2 Health Maintenance Organization (HMO) (i.e., you must have a primary care provider who must refer you to specialty care if needed)
- ☐3 Preferred Provider Organization (PPO) (i.e., you have lower co-payments when you see a preferred provider within the network, but you can see a provider out-of-network for a higher co-payment)
- ☐4 Point of Service (POS) (i.e., you must have a primary care provider; you have the option to self-refer to an in-network specialist, or you can see an out-of-network specialist with a higher co-payment)
- ☐5 Other (please specify): _____
- ☐6 I have not had an insurance plan in the past 12 months.

Q14. Do you test your blood sugar? (check one box)

☐1 No ☐2 Yes → Q14a. How many days a week do you test your blood sugar?

_____ (days / week)

Q14b. On days that you test, how many times do you test your blood sugar?

_____ (times / day)

Q14c. Do you keep a record of your blood sugar test results? (check one box)

☐1 No ☐2 Yes ☐3 Only Unusual Values

Section II – Health Status

Q1. In general, would you say your health is: (check one box)

☐1	☐2	☐3	☐4	☐5
Excellent	Very Good	Good	Fair	Poor

Q2. These questions ask about how you feel and how things have been with you **during the past 4 weeks**. For each question, please give the one answer that comes closest to the way you have been feeling.

How much of the time **during the past 4 weeks**: (circle one answer for each line)

		All of the Time	Most of the Time	A Good Bit of the Time	Some of the Time	A Little of the Time	None of the Time
A.	Have you felt **calm and peaceful**?	1	2	3	4	5	6
B.	Did you have a **lot of energy**?	1	2	3	4	5	6
C.	Have you felt **downhearted and blue**?	1	2	3	4	5	6

Section III – Education / Advice Received

Q1. Has your health care provider or nurse ever told you to take special care of your feet? (check one box)

☐1 No ☐2 Yes ☐3 Not Sure

Q2. Has your health care provider or nurse ever told you to follow an exercise program? (check one box)

☐1 No ☐2 Yes ☐3 Not Sure

Q3. Has your health care provider or nurse ever told you to follow a meal plan or diet? (check one box)

☐1 No ☐2 Yes ☐3 Not Sure

Q4. Have you ever received diabetes education? (for example: attended a series of classes or series of meetings with a diabetes educator) (check one box)

☐1 No ☐2 Yes ☐3 Not Sure

Section IV - Understanding

Q1. How do you rate your understanding of: (circle one answer for each line)	**Poor**				**Excellent**
a) overall diabetes care	1	2	3	4	5
b) coping with stress	1	2	3	4	5
c) diet for blood sugar control	1	2	3	4	5
d) the role of exercise in diabetes care	1	2	3	4	5
e) medications you are taking	1	2	3	4	5
f) how to use the results of blood sugar monitoring	1	2	3	4	5
g) how diet, exercise, and medicines affect blood sugar levels	1	2	3	4	5
h) prevention and treatment of high blood sugar	1	2	3	4	5
i) prevention and treatment of low blood sugar	1	2	3	4	5
j) prevention of long-term complications of diabetes	1	2	3	4	5
k) foot care	1	2	3	4	5
l) benefits of improving blood sugar control	1	2	3	4	5
m) pregnancy and diabetes	1	2	3	4	5

Section V – Support

Q1. I **want** a lot of help and support from my family or friends in:
(circle one answer for each line)

	Strongly Disagree	**Somewhat Disagree**	**Neutral**	**Somewhat Agree**	**Strongly Agree**	**Does Not Apply**
a) following my meal plan.	1	2	3	4	5	N/A
b) taking my medicine.	1	2	3	4	5	N/A
c) taking care of my feet.	1	2	3	4	5	N/A
d) getting enough physical activity.	1	2	3	4	5	N/A
e) testing my sugar.	1	2	3	4	5	N/A
f) handling my feelings about diabetes.	1	2	3	4	5	N/A

Q2.My family or friends help and support me a lot to:
(circle one answer for each line)

	Strongly Disagree	**Somewhat Disagree**	**Neutral**	**Somewhat Agree**	**Strongly Agree**	**Does Not Apply**
a) follow my meal plan.	1	2	3	4	5	N/A
b) take my medicine.	1	2	3	4	5	N/A
c) take care of my feet.	1	2	3	4	5	N/A
d) get enough physical activity.	1	2	3	4	5	N/A
e) test my sugar.	1	2	3	4	5	N/A
f) handle my feelings about diabetes.	1	2	3	4	5	N/A

Q3.My family or friends: (circle one answer for each line)

	Strongly Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Strongly Agree
a) accept me and my diabetes.	1	2	3	4	5
b) feel uncomfortable about me because of my diabetes.	1	2	3	4	5
c) encourage or reassure me about my diabetes.	1	2	3	4	5
d) discourage or upset me about my diabetes.	1	2	3	4	5
e) listen to me when I want to talk about my diabetes.	1	2	3	4	5
f) nag me about diabetes.	1	2	3	4	5

Q4. Who helps you the **most** in caring for your diabetes? (check only one box)

- ☐ 1 Spouse
- ☐ 2 Other family members
- ☐ 3 Friends
- ☐ 4 Paid helper
- ☐ 5 Doctor
- ☐ 6 Nurse
- ☐ 7 Case manager
- ☐ 8 Other health care professional
- ☐ 9 No one

Section VI - Control Problems Scale

For the following questions, please check the appropriate response.

Q1.How many **times** in the last **month** have you had a **low blood sugar** (glucose) reaction with symptoms such as sweating, weakness, anxiety, trembling, hunger or headache?

- ☐1 0 times
- ☐2 1-3 times
- ☐3 4-6 times
- ☐4 7-12 times
- ☐5 More than 12 times
- ☐6 Don't know

Q2.How many **times** in the last **year** have you had **severe low blood sugar** reactions such as passing out or needing help to treat the reaction?

- ☐1 0 times
- ☐2 1-3 times
- ☐3 4-6 times
- ☐4 7-12 times
- ☐5 More than 12 times
- ☐6 Don't know

Q3.How many **days** in the last **month** have you had **high blood sugar** with symptoms such as thirst, dry mouth and skin, increased sugar in the urine, less appetite, nausea, or fatigue?

☐$_1$ 0 days
☐$_2$ 1-3 days
☐$_3$ 4-6 days
☐$_4$ 7-12 days
☐$_5$ More than 12 days
☐$_6$ Don't know

Q4.How many **days** in the last **month** have you had **ketones** in your urine?

☐$_1$ 0 days
☐$_2$ 1-3 days
☐$_3$ 4-6 days
☐$_4$ 7-12 days
☐$_5$ More than 12 days
☐$_6$ Don't test

Q5. During the past year, how often did your blood sugar become **too high** because: (circle one answer for each line)	**Never**		**Sometimes**		**Often**	**Don't Know**
a) you were sick or had an infection?	1	2	3	4	5	DK
b) you were upset or angry?	1	2	3	4	5	DK
c) you took the wrong amount of medicine?	1	2	3	4	5	DK
d) you ate the wrong types of food?	1	2	3	4	5	DK
e) you ate too much food?	1	2	3	4	5	DK
f) you had less physical activity than usual?	1	2	3	4	5	DK
g) you were feeling stressed?	1	2	3	4	5	DK

Q6. During the past year, how often did your blood sugar become **too low** because: (circle one answer for each line)	**Never**		**Sometimes**		**Often**	**Don't Know**
a) you were sick or had an infection?	1	2	3	4	5	DK
b) you were upset or angry?	1	2	3	4	5	DK
c) you took the wrong amount of medicine?	1	2	3	4	5	DK
d) you ate the wrong types of food?	1	2	3	4	5	DK
e) you ate too little food?	1	2	3	4	5	DK
f) you had more physical activity than usual?	1	2	3	4	5	DK
g) you waited too long to eat or skipped a meal?	1	2	3	4	5	DK
h) you were feeling stressed?	1	2	3	4	5	DK

Section VII - Social and Personal Factors Scale

For the following questions, please circle the appropriate response.

	Never		Sometimes		Often	Don't Know
Q1. How often has your diabetes kept you from doing your normal daily activities during the past **year** (e.g., couldn't: go to work, work around the house, go to school, visit friends)?	1	2	3	4	5	DK

Q2. My diabetes and its treatment keep me from: (circle one answer for each line)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
a) having enough money.	1	2	3	4	5
b) meeting school, work, household, and other responsibilities.	1	2	3	4	5
c) going out or traveling as much as I want.	1	2	3	4	5
d) being as active as I want.	1	2	3	4	5
e) eating foods that I like.	1	2	3	4	5
f) eating as much as I want.	1	2	3	4	5
g) having good relationships with people.	1	2	3	4	5
h) keeping a schedule I like (e.g., eating or sleeping late).	1	2	3	4	5
i) spending time with my friends.	1	2	3	4	5
j) having enough time alone.	1	2	3	4	5

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Q3. Paying for my diabetes treatment and supplies is a problem.	1	2	3	4	5

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Q4. Having diabetes makes my life difficult.	1	2	3	4	5

Section VIII - Attitudes Toward Diabetes Scales

(Positive Attitude, Negative Attitude, Care Ability, Importance of Care, and Self-Care Adherence)

For the following questions, please circle the appropriate response.
(circle one answer for each line)

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Q1.	I am afraid of my diabetes.	1	2	3	4	5
Q2.	I find it hard to believe that I really have diabetes.	1	2	3	4	5
Q3.	I feel unhappy and depressed because of my diabetes.	1	2	3	4	5
Q4.	I feel satisfied with my life.	1	2	3	4	5
Q5.	I feel I'm not as good as others because of my diabetes.	1	2	3	4	5
Q6.	I can do just about anything I set out to do.	1	2	3	4	5
Q7.	I find it hard to do all the things I have to do for my diabetes.	1	2	3	4	5
Q8.	Diabetes doesn't affect my life at all.	1	2	3	4	5
Q9.	I am pretty well off, all things considered.	1	2	3	4	5
Q10.	Things are going very well for me right now.	1	2	3	4	5

Q11.	I am **able** to: (circle one answer for each line)	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
	a) keep my blood sugar in good control.	1	2	3	4	5
	b) keep my weight under control.	1	2	3	4	5
	c) do the things I need to do for my diabetes (diet, medicine, exercise, etc.).	1	2	3	4	5
	d) handle my feelings (fear, worry, anger) about my diabetes.	1	2	3	4	5

Q12.	I think it is **important** for me to: (circle one answer for each line)	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
	a) keep my blood sugar in good control.	1	2	3	4	5
	b) keep my weight under control.	1	2	3	4	5
	c) do the things I need to do for my diabetes (diet, medicine, exercise, etc.).	1	2	3	4	5
	d) handle my feelings (fear, worry, anger) about my diabetes.	1	2	3	4	5

		Never		Sometimes		Always	Don't Know
Q13.	I keep my blood sugar in good control.	1	2	3	4	5	DK

		Never		Sometimes		Always
Q14.	I keep my weight under control.	1	2	3	4	5
Q15.	I do the things I need to do for my diabetes (diet, medicine, exercise, etc.).	1	2	3	4	5
Q16.	I feel dissatisfied with life because of my diabetes.	1	2	3	4	5
Q17.	I handle the feelings (fear, worry, anger) about my diabetes fairly well.	1	2	3	4	5

Section IX - Diet Adherence Scale

Q1. Has any health care provider or nurse told you to follow a meal plan or diet? ☐ 1 No ☐ 2 Yes ☐ 3 Not sure

		Never		Sometimes		Always
Q2.	How often do you follow a meal plan or diet?	1	2	3	4	5

Q3. Have you been told to follow a schedule for your meals and snacks? ☐ 1 No ☐ 2 Yes

Q4. Have you been told to weigh or measure your food? ☐ 1 No ☐ 2 Yes

Q5. Have you been told to use exchange lists or food group lists to plan your meals? ☐ 1 No ☐ 2 Yes

		Never		**Sometimes**		**Always**
Q6.	How often do you follow the schedule for your meals and snacks?	1	2	3	4	5
Q7.	How often do you weigh or measure your food?	1	2	3	4	5
Q8.	How often do you (or the person who cooks your food) use the exchange lists or food group lists to plan your meals?	1	2	3	4	5

Section X - Long-Term Care Benefits Scale

For the following questions, please circle the appropriate response.
(circle one answer for each line)

Q1.	Taking the best possible care of diabetes will delay or prevent:	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
	a) eye problems	1	2	3	4	5
	b) kidney problems	1	2	3	4	5
	c) foot problems	1	2	3	4	5
	d) hardening of the arteries	1	2	3	4	5
	e) heart disease	1	2	3	4	5

Section XI - Exercise Barriers Scale

For the following questions, please circle the appropriate response.
(circle one answer for each line)

Q1.	How often do you have trouble getting enough exercise because:	**Rarely**		**Sometimes**		**Often**
	a) it takes too much effort?	1	2	3	4	5
	b) you don't believe it is useful?	1	2	3	4	5
	c) you don't like to do it?	1	2	3	4	5
	d) you have a health problem?	1	2	3	4	5
	e) it makes your diabetes more difficult to control?	1	2	3	4	5

Section XII - Monitoring Barriers and Understanding Management Practice Scales

Q1. How many days a week have you been told to test:

a) urine sugar? _____ (days per week) ☐ 9 Not told to test

b) blood sugar? _____ (days per week) ☐ 9 Not told to test

If you **do not** test for sugar, skip Question No. 2.

For the following questions, please circle the appropriate response.
(circle one answer for each line)

Q2. When you **don't** test for sugar as often as you have been told, how often is it because:	**Rarely**		**Sometimes**		**Often**
a) you forgot?	1	2	3	4	5
b) you don't believe it is useful?	1	2	3	4	5
c) the time or place wasn't right?	1	2	3	4	5
d) you don't like to do it?	1	2	3	4	5
e) you ran out of test materials?	1	2	3	4	5
f) it costs too much?	1	2	3	4	5
g) it's too much trouble?	1	2	3	4	5
h) it's hard to read the test results?	1	2	3	4	5
i) you can't do it by yourself?	1	2	3	4	5
j) your levels don't change very often?	1	2	3	4	5
k) it hurts to prick your finger?	1	2	3	4	5

Q3. Have you ever received diabetes education? ☐ 1 No ☐ 2 Yes

If No, skip Question No. 4

For the following questions, please circle the appropriate response.
(circle one answer for each line)

Q4. How do you rate your understanding of:	**Poor**		Good		**Excellent**
a) diet and blood sugar control	1	2	3	4	5
b) weight management	1	2	3	4	5
c) exercise	1	2	3	4	5
d) use of insulin/pills	1	2	3	4	5
e) sugar testing	1	2	3	4	5
f) foot care	1	2	3	4	5
g) complications of diabetes	1	2	3	4	5
h) eye care	1	2	3	4	5
i) combining diabetes medication with other medications	1	2	3	4	5
j) alcohol use and diabetes	1	2	3	4	5

Addition to Section I (Demographics) - Income Question

Q15. Which of the categories best describes your total annual <u>combined</u> household income from <u>all</u> sources? (check one box)

- ☐ 01 Less than $5,000
- ☐ 02 $5,000 to $9,999
- ☐ 03 $10,000 to $14,999
- ☐ 04 $15,000 to $19,999
- ☐ 05 $20,000 to $29,999
- ☐ 06 $30,000 to $39,999
- ☐ 07 $40,000 to $49,999
- ☐ 08 $50,000 to $59,999
- ☐ 09 $60,000 to $69,999
- ☐ 10 $70,000 and over

Addition to Section I (Demographics) - Occupation Question (from NHANES III)

Q15/Q16. During the past 2 weeks, did you work at any time at a job or business, not counting work around the house?

☐1 No ☐2 Yes →

Q15a/Q16a. What kind of work were you doing?
(For example: electrical engineer, stock clerk, typist, farmer.)

☐01 Executive, administrators, and managers	☐21 Miscellaneous food preparation and service occupations
☐02 Management related occupations	☐22 Health service occupations
☐03 Engineers and scientists	☐23 Cleaning and building service occupations
☐04 Health diagnosing, assessment, and treating occupations	☐24 Personal service occupations
☐05 Teachers	☐25 Farm operators, managers, and supervisors
☐06 Writers, artists, entertainers, and athletes	☐26 Farm and nursery workers
☐07 Other professional specialty occupations	☐27 Related agricultural, forestry, and fishing occupations
☐08 Technicians and related support occupations	☐28 Vehicle and mobile equipment mechanics and repairers
☐09 Supervisors and proprietors, sales occupations	☐29 Other mechanics and repairers
☐10 Sales representatives, finance, business, and commodities except retail	☐30 Construction trades
☐11 Sales workers, retail and personal business	☐31 Extractive and precision producti occupations
☐12 Secretaries, stenographers, and typists	☐32 Textile, apparel, and furnishings machine operators
☐13 Information clerks	☐33 Machine operators, assorted materials
☐14 Records processing occupations	☐34 Fabricators, assemblers, inspecto and samplers
☐15 Material recording, scheduling, and distributing clerks	☐35 Motor vehicle operators
☐16 Miscellaneous administrative support occupations	☐36 Other transportation and material moving occupations
☐17 Private household occupations	☐37 Construction laborers
☐18 Protective service occupations	☐38 Laborers, except construction
☐19 Waiters and waitresses	☐39 Freight, stock, and material move
☐20 Cooks	☐40 Other handlers, equipment cleaners, and handlers
	☐41 Don't Know

Replace Section II (Health Status) with SF-12

Q1. In general, would you say your health is: (check one box)

☐1	☐2	☐3	☐4	☐5
Excellent	Very Good	Good	Fair	Poor

The following items are about activities you might do during a typical day. **Does your health now limit you** in these activities? If so, how much? (check one box for each line)

		Yes, Limited a Lot	Yes, Limited a Little	No, Not limited at all
Q2. ☐3	**Moderate activities**, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf	☐1	☐2	
Q3. ☐3	Climbing **several** flights of stairs	☐1	☐2	

During the past 4 weeks, have you had any of the following problems with your work or other regular daily activities **as a result of your physical health**? (check one box for each line)

		Yes	No
Q4.	**Accomplished less** than you would like	☐1	☐2
Q5.	Were limited in the **kind** of work or other activities	☐1	☐2

During the past 4 weeks, have you had any of the following problems with your work or other regular daily activities **as a result of any emotional problems** (such as feeling depressed or anxious)? (check one box for each line)

		Yes	No
Q6.	**Accomplished less** than you would like	☐1	☐2
Q7.	Didn't do work or other activities as **carefully** as usual	☐1	☐2

Q8. During the **past 4 weeks**, how much did **pain** interfere with your normal work (including both work outside the home and housework)? (check one box)

☐1	☐2	☐3	☐4	☐5
Not at all	A little bit	Moderately	Quite a bit	Extremely

These questions are about how you feel and how things have been with you **during the past 4 weeks**. For each question please give the one answer that comes closest to the way you have been feeling.

How much of the time **during the past 4 weeks:** (circle one answer for each line)

		All of the Time	Most of the Time	A Good Bit of the Time	Some of the Time	A Little of the Time	None of the Time
Q9.	Have you felt **calm and peaceful**?	1	2	3	4	5	6
Q10.	Did you have a **lot of energy**?	1	2	3	4	5	6
Q11.	Have you felt **downhearted and blue**?	1	2	3	4	5	6

Q12. During the past 4 weeks, how much of the time has your physical health or emotional problems interfered with your social activities (like visiting with friends, relatives, etc.)? (check one box)

☐1	☐2	☐3	☐4	☐5
All of the time	Most of the time	Some of the time	A little of the time	None of the time

Replace Section II (Health Status) with SF-36

Q1. In general, would you say your health is: (check one box)

☐1	☐2	☐3	☐4	☐5
Excellent	Very Good	Good	Fair	Poor

Q2. Compared to one year ago, how would you rate your health in general now? (check one box)

- ☐1 Much better now than 1 year ago
- ☐2 Somewhat better now than 1 year ago
- ☐3 About the same
- ☐4 Somewhat worse now than 1 year ago
- ☐5 Much worse now than 1 year ago

Q3. The following questions are about activities you might do during a typical day. Does **your health now limit you** in these activities? If so, how much? (circle one answer on each line)

	Yes, Limited A Lot	Yes, Limited A Little	No, Not Limited At All
A. Vigorous activities, such as running, lifting heavy objects, participating in strenuous sports?	1	2	3
B. Moderate activities, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf?	1	2	3
C. Lifting or carrying groceries?	1	2	3
D. Climbing several flights of stairs?	1	2	3
E. Climbing one flight of stairs?	1	2	3
F. Bending, kneeling, or stooping?	1	2	3
G. Walking more than a mile?	1	2	3
H. Walking several blocks?	1	2	3
I. Walking one block?	1	2	3
J. Bathing or dressing yourself?	1	2	3

Q4. During the **past 4 weeks**, have you had any of the following problems with your work or other regular daily activities **as a result of your physical health**? (circle one answer on each line)

	Yes	No
A. Cut down the amount of time you spent on work or other activities	1	2
B. Accomplished less than you would like	1	2
C. Were limited in the kind of work or other activities	1	2
D. Had difficulty performing the work or other activities (for example, it took extra effort)	1	2

Q5. During the **past 4 weeks**, have you had any of the following problems with your work or other regular daily activities **as a result of any emotional problems** (such as feeling depressed or anxious)? (circle one answer on each line)

		Yes	No
A.	Cut down the amount of time you spent on work or other activities	1	2
B.	Accomplished less than you would like	1	2
C.	Didn't do work or other activities as carefully as usual	1	2

Q6. During the **past 4 weeks**, to what extent has your physical health or emotional problems interfered with your normal social activities with family, friends, neighbors, or groups? (check one box)

☐1 Not at all ☐2 Slightly ☐3 Moderately ☐4 Quite a bit ☐5 Extremely

Q7. How much **bodily** pain have you had during the **past 4 weeks**? (check one box)

☐1 None ☐2 Very Mild ☐3 Mild ☐4 Moderate ☐5 Severe ☐6 Very Sever

Q8. During the **past 4 weeks**, how much did **pain** interfere with your normal work (including both work outside the home and housework)? (check one box)

☐1 Not at all ☐2 A little bit ☐3 Moderately ☐4 Quite a bit ☐5 Extremely

Q9. These questions are about how you feel and how things have been with you **during the**

past 4 weeks. For each question please give the one answer that comes closest to the way you have been feeling.

How much of the time **during the past 4 weeks**: (circle one answer on each line)

	All of the Time	**Most of the Time**	**A Good Bit of the Time**	**Some of the Time**	**A Little of the Time**	**None of the Time**
A. Did you feel full of pep?	1	2	3	4	5	6
B. Have you been a very nervous person?	1	2	3	4	5	6
C. Have you felt so down in the dumps that nothing could cheer you up?	1	2	3	4	5	6
D. Have you felt calm and peaceful?	1	2	3	4	5	6
E. Did you have a lot of energy?	1	2	3	4	5	6
F. Have you felt downhearted and blue?	1	2	3	4	5	6
G. Did you feel worn out?	1	2	3	4	5	6
H. Have you been a happy person?	1	2	3	4	5	6
I. Did you feel tired?	1	2	3	4	5	6

Q10. During the **past 4 weeks**, how much of the time has your **physical health or emotional problems** interfered with your social activities (like visiting with friends, relatives, etc.)?

(check one box)

☐1 All of the time

☐2 Most of the time

☐3 Some of the time

☐4 A little of the time

☐5 None of the time

Q11. Please choose the answer that best describes how **true** or **false** each of the following statements is for you. (circle one answer on each line)

	Definitely True	**Mostly True**	**Not Sure**	**Mostly False**	**Definitely False**
A. I seem to get sick a little easier than other people.	1	2	3	4	5
B. I am as healthy as anybody I know.	1	2	3	4	5
C. I expect my health to get worse.	1	2	3	4	5
D. My health is excellent.	1	2	3	4	5

Q12a. Which are you? (check one box)

☐1 Male

☐2 Female

Q12b. How old were you on your last birthday? (check one box)

- ☐ 1 Less than 35
- ☐ 2 35-44
- ☐ 3 45-54
- ☐ 4 55-64
- ☐ 5 65-74
- ☐ 6 75-84
- ☐ 7 85 and older

Q13. Have you ever filled out this form before? (check one box)

- ☐ 1 Yes
- ☐ 2 No
- ☐ 3 Don't remember

APPENDIX C

MICHIGAN DIABETES RESEARCH AND TRAINING CENTER'S

DIABETES KNOWLEDGE TEST

1. The diabetes diet is:
   a. the way most American people eat
   b.* a healthy diet for most people
   c. too high in carbohydrate for most people
   d. too high in protein for most people

2. Which of the following is highest in carbohydrate?
   a, Baked chicken
   b. Swiss cheese
   c.* Baked potato
   d. Peanut butter

3. Which of the following is highest in fat?
   a.* Low fat milk
   b. Orange juice
   c. Corn
   d. Honey

4. Which of the following is a "free food"?
   a Any unsweetened food
   b. Any dietetic food
   c. Any food that says "sugar free" on the label
   d.* Any food that has less than 20 calories per serving

5. Glycosylated hemoglobin (hemoglobin A1) is a test that is a measure of your average blood glucose level for the past:
   a. day
   b. week
   c.* 6-10 weeks
   d. 6 months

6. Which is the best method for testing blood glucose?
   a. Urine testing
   b.* Blood testing
   c. Both are equally good

7. What effect does unsweetened fruit juice have on blood glucose?
   a. Lowers it
   b.* Raises it
   c. Has no effect

8. Which should <u>not</u> be used to treat low blood glucose?
   a. 3 hard candies
   b. 1/2 cup orange juice
   c.* 1 cup diet soft drink
   d. 1 cup skim milk

9. For a person in good control, what effect does exercise have on blood glucose?
   a.* Lowers it
   b. Raises it
   c. Has no effect

10. Infection is likely to cause:
   a.* an increase in blood glucose
   b. a decrease in blood glucose
   c. no change in blood glucose

11. The best way to take care of your feet is to:
   a.* look at and wash them each day
   b. massage them with alcohol each day
   c. soak them for one hour each day
   d. buy shoes a size larger than usual

12. Eating foods lower in fat decreases your risk for:
   a. nerve disease
   b. kidney disease
   c.* heart disease
   d. eye disease

13. Numbness and tingling may be symptoms of:
   a. kidney disease
   b.* nerve disease
   c. eye disease
   d. liver disease

14. Which of the following is usually <u>not</u> associated with diabetes:
   a. vision problems
   b. kidney problems
   c. nerve problems
   d.* lung problems

15. Signs of ketoacidosis include:
   a. shakiness
   b. sweating
   c.* vomiting
   d. low blood glucose

16. If you are sick with the flu, which of the following changes should you make?
   a. Take less insulin
   b. Drink less liquids
   c. Eat more proteins
   d.* Test for glucose and ketones more often

17. If you have taken intermediate-acting insulin (NPH or Lente), you are most likely to have an insulin reaction in:
   a. 1-3 hours
   b.* 6-12 hours
   c. 12-15 hours
   d. more than 15 hours

18. You realize just before lunch time that you forgot to take your insulin before breakfast. What should you do now?
   a. Skip lunch to lower your blood glucose
   b. Take the insulin that you usually take at breakfast
   c. Take twice as much insulin as you usually take at breakfast
   d.* Check your blood glucose level to decide how much insulin to take

19. If you are beginning to have an insulin reaction, you should:
   a. exercise
   b. lie down and rest
   c.* drink some juice
   d. take regular insulin

20. Low blood glucose may be caused by:
   a.* too much insulin
   b. too little insulin
   c. too much food
   d. too little exercise

21. If you take your morning insulin but skip breakfast your blood glucose level will usually:
   a. increase
   b.* decrease
   c. remain the same

22. High blood glucose may be caused by:
   a.* not enough insulin
   b. skipping meals
   c. delaying your snack
   d. large ketones in your urine

23. Which one of the following will most likely cause an insulin reaction:
   a.* heavy exercise
   b. infection
   c. overeating
   d. not taking your insulin

*Correct answer